

LONG ISLAND BIOLOGICAL ASSOCIATION  
COLD SPRING HARBOR, NEW YORK

BIOLOGICAL LABORATORY

June 10, 1957

Dr. W. H. Stone  
Department of Genetics  
University of Wisconsin  
Madison, Wisconsin

Dear Bill,

A few weeks ago I saw Josh and was prodded into thinking about the bacterial-cattle cross-reactions again. Are you still interested in doing something with them? I'm sorry about my prolonged apparent disinterest. A minor misunderstanding was involved which isn't worth elaborating.

There were really two situations involved: 1) the cross reaction of the O antigen of E. coli WGL5 and cattle A antigen, and 2) the wide array of "natural" agglutinins of coli in cattle sera. I will write to Wilmer Miller shortly to see if he is still interested in pursuing the first problem. In the meantime, let me give you the principal data on the second together with what thoughts I have at the time. If you are still interested, as a first step, maybe we can simply discuss the question of whether the problem is worth following up and the kinds of things that should be done. Then, if you would like to take the thing over from this point, it is all right with me. Alternatively, I may be in a position to do something experimentally at Montana State.

I have included a copy of a write-up of the data which was made when I left Wisconsin. All pertinent data are included, but the interpretation is not particularly appropriate. In particular, the analysis of the ~~xx~~ twin data and the interpretation ensuing is not very satisfactory.

On another sheet I have shown how I made more appropriate calculations bearing on the question of whether twins tend to be alike. Unless there is still some fallacy in reasoning or calculation, it seems quite likely that twins are more alike in their capacities to agglutinate bacteria than would be expected if any two randomly selected cattle were compared. I'm not sure just what this indicates however. Not only are twins identical genetically but they have a common environment for a long time after birth (till adulthood generally?). My guess now is that the similarity of twins observed is only a function of their common environment. If it were genetic, they should be much more similar than they are. Proper controls (identical twins reared apart, non-siblings raised together, etc.) would be a help; but, due to the nature of the situation, are only theoretically possible.

If my suspicion is correct, (that these are due to immuniz. with bacteria), cattle sera from one farm might be expected to differ from cattle sera from another (where a different bacterial flora may exist) even though the two herds are roughly equivalent genetically. Perhaps this would be worth examining.

A first step, however, which was never done was simply to see if specific agglutinins can be absorbed out of cattle sera. Another thing which should be more carefully tested is whether the agglutination can be blocked by the presence of a capsular antigen (K) which is known to block the accessibility of the O antigen. A negative result would not be convincing, since the cattle serum might contain

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antibody to the particular K antigen as well; but if any positive results were obtained they would be informative.

To avoid further delay, I will not go into greater detail at this time. If it turns out that you will be doing further experiments, Josh has the bacterial stocks, and I will supply the details of preparing bacteria, etc. Meanwhile, let me know how you feel about the project, especially with relevance to other related work in the literature with which you may be acquainted.

Best regards to your wife and to Dr. Irwin and others in the lab.

Sincerely,

*Dave*

P. D. Skaar